WOMACK ARMY MEDICAL CENTER
FT BRAGG, NORTH CAROLINA 28310

STANDARD OF CARE FOR MANAGEMENT OF HEAT CASUALTIES

1. PURPOSE. To provide guidelines for the management and treatment of patients who have sustained exertional heat illness at Ft. Bragg.

2. RESPONSIBILITY. These guidelines will be considered standard of care for all health care providers at Ft. Bragg.

3. CATEGORY, TREATMENT, AND DISPOSITION

a. Exertional heat illness is multisystem illness generally presenting as staggering or collapse during or immediately following exercise, confusion/amnesia, or inability to continue work. Symptom combinations vary and include dizziness, fatigue, headache, visual abnormalities, thirst, muscle cramps, GI distress, elevated core body temperature, and/or altered mental status.

b. There will generally be two groups of patients, although categorization is sometimes indistinct. Group A patients may progress to Group B if not receiving prompt and adequate treatment:

(1) Group A – Mild Exertional Heat Illness (Heat exhaustion, Exertional dehydration, Heat cramps, potential Hyponatremia). Patients who present alert with appropriate behavior, near-normal and rapidly stabilizing vital signs, and able to drink fluids. These patients may receive care outside of the hospital. However, upon first realization that the patient might not fully recover within one hour, evacuation should be quickly arranged to an Emergency Department without further delay.

(2) Group B – Severe Exertional Heat Illness (Heat stroke, Exertional heat injury, Rhabdomyolysis). Patients whose presentation includes any of the following: history of mental status changes or amnesia, history of syncope or seizure, unable to drink fluids, rectal temp>104°F, systolic BP<90 or orthostatic symptoms, severe muscle or abdominal pain (or numbness). Treatment must be more aggressive for Group B, all of whom will require laboratory evaluation, follow-up the next day, and profiling. Group B patients will all be evaluated in an Emergency Department (with immediate treatment beginning before and continuing during evacuation).

c. Initial assessment, vital signs, and treatment (including cooling if rectal temp>103°F) should begin **immediately** in the field. For all patients coming to the WAMC Emergency Department, field treatment and conditions must be documented on the **Prehospital Exertional Heat Illness Form**. The medic

should obtain the information to fill out this form completely (or bring an individual who can provide this information to the Emergency Department).

d. **Group A Field Treatment Protocol:**

(1) All patients should be placed at rest in the shade, clothing loosened, and cooling started if rectal temp >103°F. Stop aggressive cooling at 102°F to avoid hypothermia.

(2) Repeat vital signs (including mental status assessment) every 5-10 minutes until stable and rectal temperature is consistently below 100°F.

(3) Oral or IV rehydration (2 liter maximum) with a standard replacement solution (e.g., ORAL -- water, sports beverage, or 0.5% salt solution [1 teaspoon per quart of water]; IV – normal saline) until patient voids. Persistent symptoms beyond one hour, recurrent vomiting, or worsening of condition in the field requires evacuation to an Emergency Department.

(4) Obtain urine and do dip stick (if available). No patient leaves medical treatment until providing urine. Blood on dipstick requires evacuation to an Emergency Department.

(5) Disposition:

(a) Group A patients treated in the field who fully recover within one hour and up to 2 liters of rehydration may return to light duty on a profile for the remainder of the day and full duty the next day. These patients do not require further medical evaluation or reporting.

(b) Group A patients who do not fully recover within one hour or will require more than 2 liters of rehydration must be evaluated in an Emergency Department, usually to include laboratory tests, reporting, follow-up, and profiling. (See Group B guidelines)

e. **Group B Guidelines for Emergency Care:**

(1) ACLS procedures as required. Place patient on monitor and obtain EKG. Apply oxygen as needed to maintain SaO_2>95%.

(2) Remove clothing except underwear (provide for privacy).

(3) Cooling (if rectal temp >103°F), with ice water and fans when available, until rectal temperature is 102°F. Stop aggressive cooling at 102°F to avoid hypothermia.

(4) Repeat vital signs (including mental status assessment) every 5-10 minutes until stable and rectal temperature is consistently below 100°F. Continuous

measurement of temperature by means of rectal probe is the preferred method. Record on **Nursing Exertional Heat Illness Form**.

(5) IV hydration (usually rapid infusion of 1-3 liters of normal saline) until patient is presumed rehydrated and clinically stable. Record on **Nursing Exertional Heat Illness Form**.

(6) Order ER-Heat Injury laboratory set and record results on **Preventive Medicine Exertional Heat Illness Form**.

(7) Obtain urine and send for complete urinalysis with microscopic; record amount on **Nursing Exertional Heat Illness Form** and results on **Preventive Medicine Exertional Heat Illness Form**. No patient leaves medical treatment until providing urine. Presence of myoglobinuria should lead to strong consideration for hospitalization.

(8) Obtain information and fill out **Provider Exertional Heat Illness Form** and **Preventive Medicine Exertional Heat Illness Form** completely. A copy of the patient's SF558, copy of the nursing notes and copy of the Heat Packet will be placed in the "PREVENTIVE MEDICINE" box in the medication preparation area of the ED Team Center. These will be picked up daily from the WAMC Emergency Department by the Preventive Medicine Service and taken to the EDC Clinic for use in administrative follow-up.

(9) Disposition:

(a) Mildly ill patients who appear to be fully recovered in the Emergency Department and have no laboratory abnormalities may return to light duty the next day and limited duty the following day. However, important deficits are sometimes subtle or delayed, and the patient should be carefully observed. Maximal exercise (e.g., APFT, Airborne operations, ruckmarching) should be avoided for several days. Provide appropriate profile.

(b) Patients not fully recovered and those having laboratory abnormalities require follow-up by a residency-trained physician, with laboratory evaluation, on the following day. They should also be referred to the EDC Clinic (Walk-in weekdays, Bldg. 1-2539 1st floor, 432-6925/9302) for reporting, follow-up laboratory review, and MEB referral.

(c) Seriously ill patients require hospitalization. This will generally include those with delirium, obtundation, coma, persistent altered mental status, shock, persistent electrolyte abnormalities, creatinine >2.0, or CK >4,000. The accompanying Table provides clinical guidelines. Upon hospital discharge patients should be referred to the EDC Clinic (Bldg. 1-2539 1st floor, 432-6925/9302) for reporting, follow-up laboratory review, and MEB referral.

(d) All patients should remain on P-4(T) profile/quarters/convalescent leave until all symptoms and laboratory tests have returned to normal (e.g., CK <700, Cr <1.4), and EDC Clinic has cleared the patient (for reportable cases). When fully recovered, the patient may then gradually resume exercise at own pace, building up to maximal exercise over several weeks. Provide appropriate profile.

4. REPORTING AND PROFILING / MEB

a. All reporting shall be through the EDC Clinic. Patients needing reporting should be placed on P-4(T) profile/quarters/convalescent leave until cleared by the EDC Clinic, which will provide profiling and arrange for MEB if needed.

b. Heat exhaustion/exertional dehydration patients are required to be reported if they require medical intervention and result in more than 4 hours of lost duty time. “Single episodes of heat exhaustion are not cause for MEB referral. However, soldiers suffering from recurrent episodes of heat exhaustion (three or more in less than 24 months) should be referred for complete medical evaluation for contributing factors. If no remediable factor causing recurrent heat exhaustion is identified, then the soldier will be referred to an MEB.” (AR 40-501 para 3-46a)

c. Heat stroke/rhabdomyolysis patients (most of Group B) are required to be reported and referred to an MEB. If the soldier has had full clinical recovery, the MEB should give a 3-month P-3(T) profile, which restricts the soldier from heat exposure and from performing vigorous physical exercise for periods longer than 15 minutes. Maximal efforts, such as the APFT 2-mile run and Airborne operations, are not permitted. If, after three months, the soldier has not manifested any heat intolerance, the profile will be modified to P-2(P) and normal work permitted. Maximal exertion and significant heat exposure (such as wearing MOPP IV) are still restricted. If the soldier manifests no heat intolerance through the next summer, normal activities can be resumed and the soldier may be returned to full unrestricted duty without a PEB. Lack of full recovery, or any evidence of significant heat intolerance during the period of the profile, requires referral to a PEB. (see AR 40-501 para 3-46b)